Predictors of Adaptive Behavior in Adolescents with Autism Spectrum Disorder

Brianne Tomaszewski, Samuel Odom, Leann Smith DaWalt, & Kara Hume
Adaptive Behavior in Adolescence

(Baghdadli et al., 2012; Chang et al., 2013; Gardiner & Iarocci, 2015; Gilotty et al., 2002; Kanne et al., 2011; McDonald et al., 2015)
Objectives

• Describe the communication, daily living, and socialization adaptive behavior profiles in adolescents with ASD in the school context

• Examine the extent to which IQ and autism symptoms predicted adaptive behavior profiles in adolescents with ASD
Methods

- 547 high school students with ASD
- 60 high schools
  - North Carolina
  - Wisconsin
  - California

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonverbal IQ</td>
<td>Leiter-3 BRIEF IQ (Roid, Miller, Pomplun, &amp; Koch, 2013)</td>
</tr>
<tr>
<td>Autism symptoms</td>
<td>Social Responsiveness Scale-2 Teacher Report (Constantino &amp; Gruber, 2012)</td>
</tr>
<tr>
<td>Adaptive behavior</td>
<td>Vineland Adaptive Behavior Scales-II Teacher Form (Sparrow et al., 2005)</td>
</tr>
</tbody>
</table>
## Vineland Adaptive Behavior Scales - Teacher Report

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td></td>
</tr>
<tr>
<td>Receptive</td>
<td>What student understands</td>
</tr>
<tr>
<td>Expressive</td>
<td>How student uses spoken language</td>
</tr>
<tr>
<td>Written</td>
<td>What student reads and writes</td>
</tr>
<tr>
<td><strong>Daily Living Skills</strong></td>
<td></td>
</tr>
<tr>
<td>Personal</td>
<td>How student dresses, eats and prepares food, and uses personal hygiene</td>
</tr>
<tr>
<td><strong>Academic</strong></td>
<td>What student understands about time, money, and math</td>
</tr>
<tr>
<td><strong>School Community</strong></td>
<td>How student follows rules, uses routines, and focuses in the classroom</td>
</tr>
<tr>
<td><strong>Socialization</strong></td>
<td></td>
</tr>
<tr>
<td>Interpersonal Relationships</td>
<td>How student interacts with peers</td>
</tr>
<tr>
<td>Play and Leisure</td>
<td>How student uses leisure time</td>
</tr>
<tr>
<td>Coping Skills</td>
<td>How student demonstrates sensitivity to others and responsibility</td>
</tr>
</tbody>
</table>
### Participant Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Mean(SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>16.2(1.44)</td>
<td>14-21</td>
</tr>
<tr>
<td>Nonverbal IQ</td>
<td>85.5(27.2)</td>
<td>30-141</td>
</tr>
<tr>
<td>Autism symptoms</td>
<td>70.4(12.2)</td>
<td>39-110</td>
</tr>
</tbody>
</table>

- **Gender Distribution:**
  - Male
  - Female

- **Race Distribution:**
  - White
  - Black/African American
  - Multi
  - Asian
  - Other
  - American Indian

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**CSESA:** The Center on Secondary Education for Students with Autism Spectrum Disorders
Results

Adaptive Behavior Profile

F (2, 463) = 76.4, p < .001, η² = .25

All domains significantly lower than IQ of 85.5
Results

Adaptive Behavior Profile

<table>
<thead>
<tr>
<th>Scale</th>
<th>Receptive</th>
<th>Expressive</th>
<th>Written</th>
<th>Personal</th>
<th>Academic</th>
<th>School</th>
<th>Community</th>
<th>Coping</th>
<th>Interper.</th>
<th>Play and Leisure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>10</td>
<td>11</td>
<td>11.5</td>
<td>12</td>
<td>12.5</td>
<td>13</td>
<td>12.5</td>
</tr>
</tbody>
</table>

* indicates significant difference.
Results
Predictors of Adaptive Behavior

Nonverbal IQ
F(3, 418) = 90.4, p < .001, η² = .39

Communication
F(2, 420) = 232.5, p < .001, adj R² = .523

Daily Living Skills
F(2, 420) = 227.2, p < .001, adj R² = .518

Autism Symptoms
F (3, 418) = 94.3, p < .001, η² = .40

Socialization
F(2, 420) = 217.6, p < .001, adj R² = .507
Results

Predictors of Adaptive Behavior

Nonverbal IQ

Autism Symptoms

Communication

F(2, 420) = 232.5, p < .001, adj $R^2 = .523$

B = .36 SE = .02 $\eta^2 = .36$

Daily Living Skills

F(2, 420) = 227.2, p < .001, adj $R^2 = .518$

B = .33 SE = .02 $\eta^2 = .35$

Socialization

F(2, 420) = 217.6, p < .001, adj $R^2 = .507$

B = .13 SE = .02 $\eta^2 = .11$
Results
Predictors of Adaptive Behavior

Nonverbal IQ

Autism Symptoms

Communication
F(2, 420) = 232.5, $p < .001$, adj $R^2 = .523$

Daily Living Skills
F(2, 420) = 227.2, $p < .001$, adj $R^2 = .518$

Socialization
F(2, 420) = 217.6, $p < .001$, adj $R^2 = .507$

B = -.50 SE = .05 $\eta^2 = .19$

B = -.71 SE = .04 $\eta^2 = .40$

$p < .001$
Conclusions

- Daily Living Skills
  - Personal ➤ Academic + School Community

- Communication
  - Receptive + Written ➤ Expressive

- Socialization
  - Coping Skills ➤ Play and Leisure ➤ Interpersonal Relationships

Additional connections:
- IQ
- Autism symptoms
- Adaptive behavior
Next Steps

- Characterization of classes of change in adaptive behavior in the individuals who were receiving services as usual across two years of high school (N=244)

<table>
<thead>
<tr>
<th></th>
<th>Moderately Low and Growth M (N=213)</th>
<th>Low and No Growth M (N=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at enrollment</td>
<td>16.3</td>
<td>17.1</td>
</tr>
<tr>
<td>IQ</td>
<td>88.8</td>
<td>50.2</td>
</tr>
<tr>
<td>Autism symptoms</td>
<td>68.7</td>
<td>81.0</td>
</tr>
</tbody>
</table>
Next Steps

School Quality  Adaptive Behavior
Acknowledgements

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